

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1. (Currently Amended) A method of predicting the performance of selected drilling equipment of a drilling system, comprising:

generating a geology model of a given formation, the geology model including a geology characteristic of the given formation per unit depth; ~~and~~

determining a predicted drilling performance for a first proposed drilling equipment based on the geology model and specification data of the first proposed drilling equipment, wherein the specification data of the proposed drilling equipment is a function of the geology characteristic;

determining a predicted drilling performance for a second proposed drilling equipment based on the geology model and specification data of the second proposed drilling equipment, wherein the specification data of the second proposed drilling equipment is a function of the geology characteristic; and

comparing the predicted drilling performance for the first proposed drilling equipment with the predicted drilling performance for the second proposed drilling equipment.

2. (Currently Amended) The method of Claim 1, further comprising:
~~determining a predicted drilling performance for a second proposed drilling equipment based on the geology model and specification data of the second proposed drilling equipment, wherein the specification data of the second proposed drilling equipment is a function of the geology characteristic;~~
~~comparing the predicted drilling performance for the proposed drilling equipment to the predicted drilling performance for the second proposed drilling equipment; and~~
based on the comparison, ~~automatically~~ selecting a recommended drilling equipment for use in the drilling system.

3. (Currently Amended) The method of Claim 12, further comprising limiting the predicted drilling performance for the first proposed drilling equipment and for the second proposed drilling equipment to a certain depth in the given formation.

4. (Original) The method of Claim 3, further comprising optimizing the drilling system such that the recommended drilling equipment is matched for use with the drilling system at the certain depth in the given formation.

5. (Previously Presented) The method of Claim 2, further comprising displaying the recommended drilling equipment for the drilling system in the given formation at a certain depth.

6. (Original) The method of Claim 5, wherein displaying further comprises outputting the recommended drilling equipment in a preference order based on the comparison.

7. (Original) The method of Claim 1, wherein the geology characteristic is selected from a group consisting of log data, lithology, porosity, confined rock strength, unconfined rock strength, and shale plasticity.

8. (Original) The method of Claim 1, wherein the specification data includes at least one predicted drilling mechanics data selected from a group consisting of bit wear, mechanical efficiency, power and operating parameters.

9. (Original) The method of Claim 1, wherein the specification data includes a 3-D bit model.

10. (Currently Amended) A program product for predicting the performance of drilling system, the program product comprising:

a computer-usable medium; and

computer instructions encoded in the computer-usable medium, wherein the computer instructions, when executed, **operable to** cause a computer to perform operations comprising:

generate ~~generating~~ a geology model of a given formation, the geology model including a geology characteristic of the given formation per unit depth; ~~and~~

determine ~~determining~~ a predicted drilling performance for a **first** proposed drilling equipment based on the geology model and specification data of the **first** proposed drilling equipment, wherein the specification data of the proposed drilling equipment is a function of the geology characteristic;

determine a predicted drilling performance for a second proposed drilling equipment based on the geology model and specification data of the second proposed drilling equipment, wherein the specification data of the proposed drilling equipment is a function of the geology characteristic; and

compare the predicted drilling performance for the first proposed drilling equipment with the predicted drilling performance for the second proposed drilling equipment.

11. (Currently Amended) The program product of Claim 10, wherein the computer instructions further operable to cause the computer to ~~comprising:~~

~~determining a predicted drilling performance for a second proposed drilling equipment based on the geology model and specification data of the second proposed drilling equipment, wherein the specification data of the second proposed drilling equipment is a function of the geology characteristic;~~

~~comparing the predicted drilling performance for the proposed drilling equipment to the predicted drilling performance for the second proposed drilling equipment; and~~

based on the comparison, ~~automatically selecting~~ selecta recommended drilling equipment for use in the drilling system.

12. (Currently Amended) The program product of Claim ~~1011~~, wherein the computer instructions further comprising limiting the predicted drilling performance for the proposed drilling equipment and for the second proposed drilling equipment to a certain depth in the given formation.

13. (Currently Amended) The program product of Claim 12, wherein the computer instructions further ~~comprise~~ comprising optimizing the drilling system such that the recommended drilling equipment is matched for use with the drilling system at the certain depth in the given formation.

14. (Currently Amended) The program product of Claim 11, wherein the computer instructions are further operable to cause the computer to display ~~comprising displaying~~ the recommended drilling equipment for the drilling system in the given formation at the certain depth.

15. **(Currently Amended)** A method of selecting drilling equipment for use in a drilling system comprising:

modeling a potential well bore based on at least one geological characteristic; and
predicting a performance of a first drilling equipment of the drilling system to be used in drilling the potential well bore based on a predicted drilling mechanics data of the first drilling equipment, wherein the predicted drilling mechanics data is a function of the at least one geological characteristic used in modeling the potential well bore;

predicting a performance of a second drilling equipment of the drilling system to be used in drilling the potential well bore based on a predicted drilling mechanics data of the second drilling equipment, wherein the predicted drilling mechanics data is a function of the at least one geological characteristic used in modeling the potential well bore;

comparing the performance of the first drilling equipment to the performance of the second drilling equipment; and

based on the comparison, selecting a preferred drilling equipment for use with the drilling system.

16. **(Canceled)**

17. **(Currently Amended)** The method of Claim ~~15~~16, further comprising:
comparing real time data obtained during the drilling of the potential well bore to the predicted drilling mechanics data; and
modifying the predicted drilling mechanics data based on the real time data.

18. **(Currently Amended)** The method of Claim ~~15~~16, further comprising displaying the preferred drilling equipment for the drilling system.

19. **(Original)** The method of Claim 15, wherein modeling further comprises creating a geological model of a potential well bore at a given depth.

20. (Original) The method of Claim 19, further comprising optimizing a drilling system based on the geological model such that the preferred drilling equipment is recommended for use based on the given depth.

21. (Original) The method of Claim 20, further comprising displaying the optimized drilling system such that the preferred drilling equipment is displayed at the given depth.

22. (Original) The method of Claim 15, wherein the geology characteristic is selected from a group consisting of log data, lithology, porosity, confined rock strength, unconfined rock strength, and shale plasticity.

23. (Original) The method of Claim 15, wherein the predicted drilling mechanics data is selected from a group consisting of bit wear, mechanical efficiency power and operating parameters.

24. (Original) The method of Claim 15, wherein the predicted drilling mechanics data comprises a 3-D bit model.

25-33 (Canceled)

34. (Original) A system for selecting drilling equipment for use in a drilling system comprising:

a geological model of a proposed well bore, the geological model representative of the proposed well bore based on at least one geological characteristic;

specification data of a plurality of proposed drilling equipment, the specification data of each proposed drilling equipment including a predicted drilling mechanics data as a function of the at least one geological characteristic used for the geological model; and

means for comparing the predicted drilling mechanics data for the proposed drilling equipment to the geological model such that an optimized drilling system is selected.

35. (Original) The system of Claim 34, further comprising means for displaying the optimized drilling system.

36. (Original) The system of Claim 35, wherein the means for displaying comprises a computer display.

37. (Original) The system of Claim 35, wherein the means for displaying comprises a printed output.

38. (Original) The system of Claim 34, wherein the predicted drilling mechanics data is selected from a group consisting of bit wear, mechanical efficiency power and operating parameters.

39. (Original) The method of Claim 34, wherein the geology characteristic is selected from a group consisting of log data, lithology, porosity, confined rock strength, unconfined rock strength, and shale plasticity.